

THYMELAEACEAE

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Bentham & Hooker *f.*, Gen. Pl. 3 (1883) 186; Hooker *f.*, Fl. Brit. Ind. 5 (1890) 192; Gamble, J. As. Soc. Beng. 75, 2 (1912) 256; Merrill, EB (1921) 416; Ridley, FMP 1 (1922) 321 ('Gonystylaceae'), FMP 3 (1924) 143; Domke, Bibl. Bot. 27, Heft 111 (1934) 30, 33, 103; Masamune, EPB (1942) 510; Airy Shaw, FM 1, 4 (1953) 349; Ding Hou, FM 1, 6 (1960) 1; Backer & Bakhuizen *f.*, FJ 2 (1965) 267, FJ 2 (1965) 401 ('Gonystylaceae'); Whitmore, TFM 2 (1973) 383; Cockburn, TS 1 (1976) 251; Anderson, CLTS (1980) 332; Corner, WSTM 3rd. edition 2 (1988) 729; Turner, Gard. Bull. Sing. 47 (1995) 484; Kessler & Sidiyasa, TBSA-EK (1994) 225; Coode *et al.* (eds.), CLBD (1996) 320; Argent *et al.* (eds.), MNDT-CK 2 (1997) 630.

Trees, shrubs, climbers, rarely herbs. **Wood** often with included phloem. **Bark** fibrous and tough. **Leaves** opposite, decussate, spiral or alternate, simple, entire, without stipules, with or without translucent glandular dots, mostly pinnately veined. **Inflorescences** terminal, axillary, extra-axillary, or sometimes on brachyblasts borne on the tree trunk or older branches, simple or branched, sessile or peduncled, panicle, thyrsoid, racemose, umbellate, spicate, capitate, fascicled or condensed into glomerules, with or without bracts. **Flowers** bisexual, radially symmetrical; calyx tubular, campanulate or cupular, 4–5(–6)-lobed, aestivation imbricate or valvate or rarely equitant; corolla absent or represented by petaloid appendages of the same number and alternating with the calyx lobes or twice the number and arranged in pairs opposite calyx lobes, fleshy or membranaceous, filamentous or oblong, entire or lobed, free or rarely united into a ring, inserted at the throat of calyx tube or slightly lower; stamens 2, 4 or many, in one or two (rarely three) whorls, if in 2 whorls then inserted at 2 different levels, filaments filiform or slightly flattened, anthers 2-loculed, basifixed or dorsifixed, obtuse or apiculate, introse; disk hypogynous, membranaceous or subcarneous, annular, cupular, lobed, free and scale-like, or absent; ovary superior, 1–2-loculed or 3–5(–8)-loculed, sessile or short-stalked, style filiform, caducous, sometimes very short or obscure, terminal or excentric, sometimes provided with parastyles at the base, stigma capitate, subglobose, oblong, subclavate or pyramidal, entire or sometimes emarginate, sometimes pillose; ovules solitary in each locule, with an axial or parietal placentation, pendulous from the top. **Fruit** a drupe or drupaceous, a berry or a capsule, either apically or laterally emerging from the calyx tube; pericarp membranaceous, pulpy, coriaceous or fibrous. **Seeds** 1–2(–3) per fruit, with a caruncle-like or tail-like appendage or an aril, with or without endosperm; testa usually crustaceous, black, often with irregular ridges, smooth or with short hairs; embryo straight, cotyledons plano-convex, radicle short and superior.

Distribution. The family consists of about 50 genera with 500 species of almost cosmopolitan distribution but chiefly develop in tropical Australia and Africa. In Sabah and Sarawak, nine genera with 45 species (including 2 incompletely known species) are recorded.

Ecology. In Sabah and Sarawak, most species of the Thymelaeaceae occur in mixed dipterocarp, freshwater, peat swamp, and *kerangas* forests, at low to medium altitudes. A few, e.g. *Linostoma pauciflorum* and *Phaleria capitata*, occur in lowland to lower montane forests at altitudes to